MAR 1952 51-8U

CLASSIFICATION CONFIDENTIAL
SECURITY INFORMATION
CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT
CD NO.

50X1-HUM

COUNTRY USSR

SUBJECT Economic; Technological - Heavy machine tools, forging, electrical equipment

HOW PUBLISHED Daily newspapers

WHERE PUBLISHED USSR

DATE PUBLISHED 3 Mar - 9 Apr 1953

LANGUAGE Russian

DATE OF INFORMATION 1953

DATE DIST. 23 Jul 1953

NO. OF PAGES 4

SUPPLEMENT TO REPORT NO.

THIS IS UNEVALUATED INFORMATION

SOURCE Newspapers as indicated.

PRESS AND FORGING EQUIPMENT; HEAVY AND SPECIAL MACHINE TOOLS

ADVANCES IN USE OF PRESS AND FORGING EQUIPMENT -- Baku, Bakinskiy Rabochiy, 25 Mar 53

Fine electric-bulb spirals, gear blanks for huge turbines, rubber products, and tiny radio parts are now being manufactured on press and forging equipment. Presses and forging machines are being used in more than 20 different branches of industry.

Forging presses assure an accuracy within a range of from five to ten hundredths of a millimeter in pressing large parts, in addition to which the weight tolerance is only 12-20 grams.

In 2 years of the Fifth Five-Year Plan, plants that build presses and forging machines have perfected 69 different machines. These include powerful mechanical and hydraulic forging and forming presses, and equipment for the production of plastic items.

A great deal of attention is being given to automatizing cold and hot forming. Until recently, only bolts and nuts could be successfully formed in the cold state. At present, the products list of items that can be processed by cold forming has increased to several thousand.

An automatic produced by the Chimkent Plant for the bearing industry puts out hundreds of large balls and rollers made of steel bar each hour. The production of automatics for forming other mass-produced items has been mastered. Each one of them makes it possible to save 2,000-6,000 tons of metal each year. The productivity of such automatics has reached 30,000 items per shift. The productivity of some of them is 75 times as great as that of metal-cutting machine tools.

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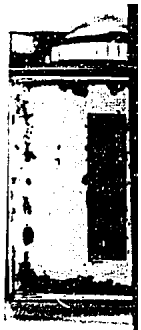

Many electric power stations, locomotives, and steamships are being built in the Soviet Union. Steam boilers for them had previously been manufactured from separate riveted and welded steel sheets. Special powerful bending presses are now making such boilers from one sheet of steel. This greatly increases their strength. In addition, the time for manufacturing a boiler has been shortened from 25 to 4 days.

Because of the growing demands of industry for press and forging equipment, a number of new plants are being constructed.

In 1953, existing plants will perfect more than 100 different type designations of press and forging equipment.

POOR SUPPLY SITUATION HAMPERS OUTPUT OF HEAVY MACHINE TOOLS -- Moscow, Izvestiya, 22 Mar 53

In line with the Fifth Five-Year Plan, which stipulates that the output of heavy-duty machine tools must be increased 2.6 times, the Leningrad Machine Tool Building Plant imeni Sverdlov must increase its production of these machine tools 3.8 times. It is characteristic that in the plant program the volume of production of heavy-duty and heavy machine tools of more than 30 tons in weight comprised 32 percent in 1951 and 47 percent in 1952. In 1953, it will increase even more.

Among the machine tools produced in recent years the following should be pointed out: a unique four-spindle horizontal-boring machine 175 tons in weight for machining holes in locomotive cylinders, a two-spindle heavy horizontal-boring machine for boring housings of electric traction locomotive motors, a boring machine from 100 to 150 tons in weight for precision boring of housings (korpusnyy detal') up to 5-6 meters in size and several tens of tons in weight, and heavy-duty tracing milling machines 55 and 110 tons in weight.

Many complex problems have been solved at the plant in developing and mastering the production of new heavy-duty machine tools. For example, the plant has successfully begun to equip machines with electronic and electric devices for controling machine-tool operation.

A great deal has been done on the unification of parts. The manufacture of special machine tools is now much less expensive than heretofore and planning conditions for putting parts into production have been improved.

A serious shortcoming in the plant's relationship with consumers has been the lengthy negotiations for agreeing on the designs of special machine tools, which has led in many instances to the loss of time followed by unwarranted speed-up.

The plant was forced to design, work out technological plans, and manufacture a model at the same time. However, in spite of the additional losses and the production risk, it successfully put out a number of complex heavy machine tools in a short time.

In solving this problem, designers Druzhinskiy, Kir'yanov, Nazarov, Gol'tsiker, etc., developed machine-tool designs which made it possible to increase the simultaneous, parallel assembly of units and thus cut the assembly cycle of machine tools in half.

Many ministries carry to extremes their orders for large quantities of special machine tools. Meanwhile, specialized machine tools, equipped with necessary attachments, can be developed on the basis of perfected series-produced machines. Such machine tools can be quickly retooled for the output of any type of product or item.

The daring use of electronics and electrical controls in machine tools requires new types of electrical instruments, apparatus, and motors. However, plants of the electrical industry are not yet supplying these devices in sufficient quantities, and their quality frequently leaves much to be desired. This delays the output of technically advanced designs of heavy-duty heavy machine tools.

It should be pointed out that workers of the electrical industry are reluctant to embark on the development of new, technically improved instruments and apparatus. For example, Series A asynchronous motors have increased dimensions as compared with the old design; multispeed motors also have increased dimensions. This does not permit their easy and effective installation in machine tools. The direct-current PN motors in their dynamic characteristics do not meet modern requirements.

Supply organizations must also be put in order. Electrical apparatus, bearings, motors, and other materials are usually received at the plant the same month the machine tools are produced. Because heavy-duty machine tools cannot be built in one month, such a procedure complicates the creation of reserve stock (zadel') and the preparation of machines for assembly, and leads either to the disruption of the scheduled output of the machine tools or to last-minute speed-up.

Good organization of the production process and the successful perfection of new types of machine tools demand a solution to problems connected with foundry bases which supply heavy machine tool building plants with large castings.

The plant must also be furnished with large forgings. This activity is still haphazard. The Uralmash Plant, Elektrostal' Novokramatorskiy Plant, etc. are not heeding delivery dates for forgings; this interferes with the regular output of machine tools.

The prompt solution of all these problems will make it possible for the Leningrad Machine Tool Building Plant imeni Sverdlov to fulfill all the tasks assigned to it. -- V. Koval'chuk, director, Leningrad Machine Tool Building Plant imeni Ya. M. Sverdlov

ENIMS DEVELOPS NEW TURRET LATHES -- Minsk, Sovetskaya Belorussiya, 9 Apr 53

The Experimental Scientific Research Institute of Metal-Cutting Machine Tools (ENIMS) has developed several new designs of high-duty turret lathes.

One of the universal turret lathes is intended for machining parts up to 450 millimeters in diameter. It has a hydraulic system which is controlled by one lever for changing speeds and feeds.

A second automatic turret lathe is twice as powerful as conventional turret lathes. Nearly all control processes are automatic. Speeds and feeds on this machine are changed automatically by a special control apparatus.

CONCENTRATE ON PRODUCTION OF HEAVY LATHES -- Stalinabad, Kommunist Tadzhikistana, 25 Mar 53

In a conference with a Tass correspondent, A. P. Kostromin, chief engineer at the Kramatorsk Heavy Machine Tool Building Plant, stated that at present the plant is specializing, for the most part, in the output of heavy screw-cutting /engine/ lathes.

REDUCE WEIGHT OF NEW MODEL MACHINE TOOL -- Moscow, Trud, 19 Mar 53

A brigade at the Novosibirsk /Tyazhstankogidropress/ Plant imeni Yefremov has pledged to release Model 7288 /planing/ machine tool by 25 April.

Shmakov, designer, has been able to reduce the weight of the Model 7288 machine tool by 10 tons. Kaplin, Mikheyev, Dolgin, Belkin, etc., designers, have accomplished similar results with several types of presses.

As a result of reviewing the designs of machines and machine tools, the plant will save approximately 400 tons of metal in one year.

PLAN NEW HEAVY PLANOMILLING MACHINE -- Moscow, Vechernyaya Moskva, 3 Mar 53

The Gor'kiy Milling Machine Plant is completing plans for a new heavy planomilling machine. The weight of the new machine tool will exceed 300 tons.

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